

Application No. 10/577,914
Response dated October 4, 2010
Reply to Office Action of September 7, 2010

AMENDMENTS TO THE CLAIMS:

1. (Previously Presented) A process for producing metal-matrix composite materials comprising at least one portion of magnesium or of a magnesium alloy and at least one production step in which thixomolding takes place, wherein a Mg₂Si phase with a volumetric content of at least 2% is dispersed into the metal matrix.
2. (Previously Presented) The process as claimed in claim 1, wherein the metal matrix comprises magnesium or a magnesium alloy.
3. (Previously Presented) The process as claimed in claim 1, wherein a granulate of silicon or a silicon alloy and a granulate of magnesium or of a magnesium alloy are processed jointly in a thixomolding process.
4. (Previously Presented) The process as claimed in claim 3, wherein the amount and/or the size of Mg₂Si phase crystallites which form and/or a silicon content of a composite material are determined via the size and/or the amount of the particles of silicon or of the silicon alloy.

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5. (Previously Presented) The process as claimed in claim 1, wherein in the thixomolding process the cast body is produced from the metal-matrix composite material which is then further processed.

6. (Previously Presented) The process as claimed in claim 5, wherein the cast body is formed from the metal-matrix composite material subsequently in at least one process step.

7. (Previously Presented) The process as claimed in claim 6, wherein the cast body is formed from the metal-matrix composite material subsequently in at least one forging process and/or extrusion process.

8. (Previously Presented) The process as claimed in claim 1, wherein in the production of the composite material addition of at least roughly 2% by weight Si and at most roughly 15% by weight Si takes place.

9. (Previously Presented) The process as claimed in claim 1, wherein a Mg₂Si phase with a volumetric content of at least roughly 5% to roughly at most roughly 40% is dispersed into a metal matrix.

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10. (Previously Presented) The process as claimed in claim 1, wherein in the production of metal-matrix composite material one of the standard magnesium alloys AZ91, AM50, MR1230D, MR1253M or a magnesium die casting alloy is used.

11. (Previously Presented) The process as claimed in claim 1, wherein after adding Si the heating rate of the thixomolding device is reduced when the melt first forms.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)